ACC.11
60th Annual Scientific Session & Expo

E124
JACC April 5, 2011
Volume 57, Issue 14

CARDIAC ARRHYTHMIAS

PREVALENCE AND PATTERNS OF EARLY REPOLARIZATION

ACC Poster Contributions
Ernest N. Morial Convention Center, Hall F
Monday, April 04, 2011, 3:30 p.m.-4:45 p.m.

Session Title: Electrophyiology -- Basic. Clinical Experimentation and Observations
Abstract Category: 25. Electrophysiology–Basic
Session-Poster Board Number: 1122-413

Authors: *Troy Leo, Abhimanyu Uberoi, Shilpy Chowdhury, Khin Chan, Nikhil A. Jain, Anthony Weinkopff, James Freeman, Euan Ashley, Vic Froelicher, Division of Cardiovascular Medicine, Department of Medicine, Stanford University School of Medicine, Stanford, CA, Veterans Affairs Palo Alto Health Care System, Palo Alto, CA*

Background: ST elevation (STE) occurs on the resting ECG of athletes and the general population when the ECG is otherwise normal (i.e., early repolarization, ER). Recently, STE has been shown to occur more often in individuals with idiopathic VT/VF and to be associated with cardiac mortality in a clinical population. These studies describe the prevalence and risks of STE without excluding other abnormalities and require adjacent leads for STE, yet their results have been extended to ER. These new concerns regarding ST elevation could further complicate the inclusion of the ECG in the Pre-Participation Exam of Athletes (PPE). The purpose of this study is to demonstrate the prevalence and patterns of ST elevation in apparently healthy individuals and athletes in order to help discriminate normal ECG variants from cardiac pathology.

Methods: 45,829 ECGs were obtained from March 1987 to December 1999 at the Palo Alto Veterans Affairs Health Care Center and 658 ECGs of athletes were obtained during the Stanford 2007 PPE. We excluded inpatients and those with ECG abnormalities, leaving 20,901 patients and 641 athletes. For the non-athlete population, survival and cause of death were determined as of December 2002; 4,086 died (963 of cardiovascular causes [17%]) after eight years. Computer analysis of the ECGs was completed with human confirmation and STE was defined as greater than or equal to 0.1 or 0.2 mv at the end of the QRS complex.

Results: STE in the anterior and lateral leads was more prevalent in males and African Americans and inversely related to age and resting heart rate. The single lead criteria resulted in 2 to 4 times more STE than the adjacent criteria. Athletes had a higher prevalence of ER even when matched for age and gender. STE greater than 0.2mv was unusual except in the anterior leads of male athletes where it occurred in 34%. STE was not associated with cardiac death in the clinical population.

Conclusions: Early repolarization is not associated with cardiac death and has patterns that help distinguish it from STE associated with cardiac conditions such as ischemia, injury and pericarditis. These findings will facilitate adding the ECG to the Pre-Participation Exam of Athletes.